Claims

1. A photodynamic therapy light source comprising:

a light source for producing illumination;

filter means having a plurality of filter elements for filtering the illumination produced by the light source to provide illumination in a specific bandwidth; and

control means for receiving data from a database of patient information and for controlling the photodynamic therapy light source so as to provide a dose of illumination at a specific wavelength bandwidth and for a predetermined time period.

2. The photodynamic therapy light source of claim 1 wherein the filter means comprises a first filter wheel having at least a filter element for transmitting ultraviolet light, a filter element for transmitting infrared light, and a filter element for transmitting light in the visible spectrum, and a blank region for preventing transmission of any light from the light source, and a second filter wheel having a plurality of filter elements for selecting a particular bandwidth of wavelength for transmission through the second filter wheel.

3. The photodynamic therapy light source of claim 2 wherein the first and second filter wheels include drive means for rotating the filter wheel so as to bring a selected one of the filter elements into alignment with the light source so that light of the required wavelength is provided.

4. The photodynamic therapy light source of claim 1 wherein the photodynamic therapy light source includes a light guide for receiving the light from the filter means and for conveying the light to a patient.

5. The photodynamic therapy light source of claim 1 wherein the photodynamic therapy light source includes a camera for providing an image of a region of the patient which is to be treated.

6. The photodynamic therapy light source of claim 5 wherein the camera is a charged couple device array and light is transmitted to the camera by an image fibre.

7. The photodynamic therapy light source of claim 6 wherein the image fibre is included in the light guide.

8. The photodynamic therapy light source of claim 1 wherein the photodynamic therapy light source includes a spectrum analyser for analysing the spectrum of reflected radiation from a region of the patient to be treated.

9. The photodynamic therapy light source of claim 8 wherein the spectrum analyser receives light reflected from the region of the patient via a fibre waveguide.

10. The photodynamic therapy light source of claim 9 wherein the fibre waveguide is included in the light guide.

11. The photodynamic therapy light source of claim 2 wherein the second filter wheel includes a tilt mechanism for tilting the filter wheel to shift the bandwidth provided by each of the filter elements of the second filter wheel.

12. The photodynamic therapy light source of claim 1 wherein the photodynamic therapy light source also includes a light intensity unit for measuring the intensity of light provided to the patient from the filter means and for determining the dose applied to the patient

based on the intensity of the light, and also the distance the light guide will be held away from the patient during treatment of the patient.

13. The photodynamic therapy light source of claim 1 wherein the control means is connectable to an external computer for storing the database and for enabling user input of commands and data.

14. The photodynamic therapy light source of claim 1 wherein the photodynamic therapy light source further comprises a modulating component for modulating the illumination to provide a treatment cycle comprised of a plurality of cycles wherein each cycle comprises a first period in which illumination is applied to a patient followed by a second period in which no illumination is applied to the patient.

15. The photodynamic therapy light source of claim 14 wherein the modulating component is also for pulsing the illumination applied in each first period to provide pulsed illumination to the patient.

16. The photodynamic therapy light source of claim 14 wherein the modulating component may be a pulse width modulator circuit which electronically controls the light source to thereby modulate the illumination.

17. The photodynamic therapy light source of claim 14 wherein the modulating component comprises a first chopper element for chopping the illumination so that the illumination is applied to the patient during the first period, but is not applied to the patient during the second period, and a second chopping element for chopping the illumination so that when the illumination is applied during the first period, the illumination is pulsed during the first period.

18. A photodynamic therapy light source comprising:

a light source for producing illumination;

a light guide for conveying light to a patient for treating the patient; and

a camera for receiving light reflected from the treatment area of the patient, so as to obtain an image of the treatment area to provide a visual indication of the progress of treatment.

19. The photodynamic therapy light source of claim 18 wherein the photodynamic therapy light source includes filter means having a plurality of filter elements for filtering the illumination provided by the light source to provide illumination in a specific wavelength bandwidth.

20. The photodynamic therapy light source of claim 18 wherein the photodynamic therapy light source includes control means for receiving data from a database of patient information and for controlling the photodynamic therapy light source to provide a treatment dose based on the said information.

21. The photodynamic therapy light source of claim 19 wherein the filter means comprises a first filter wheel having at least a filter element for transmitting ultraviolet light, a filter element for transmitting infrared light, and a filter element for transmitting light in the visible spectrum, and a blank region for preventing transmission of any light from the light source, and a second filter wheel having a plurality of filter elements for selecting a particular bandwidth of wavelength for transmission through the second filter wheel.

22. The photodynamic therapy light source of claim 21 wherein the first and second filter wheels include drive

means for rotating the filter wheel so as to bring a selected one of the filter elements into alignment with the light source so that light of the required wavelength is provided.

23. The photodynamic therapy light source of claim 18 wherein the light source includes a light guide for receiving the light from the filter means and for conveying the light to a patient.

24. The photodynamic therapy light source of claim 18 wherein the camera is a charged couple device array and light is transmitted to the camera by an image fibre.

25. The photodynamic therapy light source of claim 24 wherein the image fibre is included in the light guide.

26. The photodynamic therapy light source of claim 18 wherein the photodynamic therapy light source includes a spectrum analyser for analysing the spectrum of reflected radiation from a region of the patient to be treated.

27. The photodynamic therapy light source of claim 26 wherein the spectrum analyser receives light reflected from the region of the patient via a fibre waveguide.

28. The photodynamic therapy light source of claim 27 wherein the fibre waveguide is included in the light guide.

29. The photodynamic therapy light source of claim 21 wherein the second filter wheel includes a tilt mechanism for tilting the filter wheel to shift the bandwidth provided by each of the filter elements of the second filter wheel.

30. The photodynamic therapy light source of claim 18

wherein the photodynamic therapy light source also includes a light intensity unit for measuring the intensity of light provided to the patient from the filter means and for determining the dose applied to the patient based on the intensity of the light, and also the distance the light guide will be held away from the patient during treatment of the patient.

31. The photodynamic therapy light source of claim 20 wherein the control means is connectable to an external computer for storing the database and for enabling user input of commands and data.

32. The photodynamic therapy light source of claim 18 wherein the photodynamic therapy light source further comprises a modulating component for modulating the illumination to provide a treatment cycle comprised of a plurality of cycles wherein each cycle comprises a first period in which illumination is applied to a patient followed by a second period in which no illumination is applied to the patient.

33. The photodynamic therapy light source of claim 32 wherein the modulating component is also for pulsing the illumination applied in each first period to provide pulsed illumination to the patient.

34. The photodynamic therapy light source of claim 32 wherein the modulating component may be a pulse width modulator circuit which electronically controls the light source to thereby modulate the illumination.

35. The photodynamic therapy light source of claim 32 wherein the modulating component comprises a first chopper element for chopping the illumination so that the illumination is applied to the patient during the first period, but is not applied to the patient during the

second period, and a second chopping element for chopping the illumination so that when the illumination is applied during the first period, the illumination is pulsed during the first period.

36. A photodynamic therapy light source comprising:

a light source for providing illumination;

a light guide for conveying the illumination to a region of a patient to be treated; and

a spectrum analyser for receiving reflected light from the patient and for providing a spectrum of that light so as to provide an indication of the nature of treatment required, or the manner in which treatment is progressing.

37. The photodynamic therapy light source of claim 36 wherein the photodynamic therapy light source includes filter means having a plurality of filter elements for filtering the illumination provided by the light source to provide illumination in a specific wavelength bandwidth.

38. The photodynamic therapy light source of claim 36 wherein the photodynamic therapy light source includes control means for receiving data from a database of patient information and for controlling the photodynamic therapy light source to provide a treatment dose based on the said information.

39. The photodynamic therapy light source of claim 37 wherein the filter means comprises a first filter wheel having at least a filter element for transmitting ultraviolet light, a filter element for transmitting infrared light, and a filter element for transmitting light in the visible spectrum, and a blank region for preventing transmission of any light from the light source, and a second filter wheel having a plurality of filter elements for selecting a particular bandwidth of

wavelength for transmission through the second filter wheel.

40. The photodynamic therapy light source of claim 39 wherein the first and second filter wheels include drive means for rotating the filter wheel so as to bring a selected one of the filter elements into alignment with the light source so that light of the required wavelength is provided.

41. The photodynamic therapy light source of claim 36 wherein the light source includes a light guide for receiving the light from the filter means and for conveying the light to a patient.

42. The photodynamic therapy light source of claim 36 wherein the photodynamic therapy light source includes a camera for providing an image of a region of the patient which is to be treated.

43. The photodynamic therapy light source of claim 42 wherein the camera is a charged couple device array and light is transmitted to the camera by an image fibre.

44. The photodynamic therapy light source of claim 43 wherein the image fibre is included in the light guide.

45. The photodynamic therapy light source of claim 36 wherein the spectrum analyser receives light reflected from the region of the patient via a fibre waveguide.

46. The photodynamic therapy light source of claim 45 wherein the fibre waveguide is included in the light guide.

47. The photodynamic therapy light source of claim 39 wherein the second filter wheel includes a tilt mechanism

for tilting the filter wheel to shift the bandwidth provided by each of the filter elements of the second filter wheel.

48. The photodynamic therapy light source of claim 36 wherein the photodynamic therapy light source also includes a light intensity unit for measuring the intensity of light provided to the patient from the filter means and for determining the dose applied to the patient based on the intensity of the light, and also the distance the light guide will be held away from the patient during treatment of the patient.

49. The photodynamic therapy light source of claim 38 wherein the control means is connectable to an external computer for storing the database and for enabling user input of commands and data.

50. The photodynamic therapy light source of claim 36 wherein the photodynamic therapy light source further comprises a modulating component for modulating the illumination to provide a treatment cycle comprised of a plurality of cycles wherein each cycle comprises a first period in which illumination is applied to a patient followed by a second period in which no illumination is applied to the patient.

51. The photodynamic therapy light source of claim 50 wherein the modulating component is also for pulsing the illumination applied in each first period to provide pulsed illumination to the patient.

52. The photodynamic therapy light source of claim 50 wherein the modulating component may be a pulse width modulator circuit which electronically controls the light source to thereby modulate the illumination.

53. The photodynamic therapy light source of claim 50 wherein the modulating component comprises a first chopper element for chopping the illumination so that the illumination is applied to the patient during the first period, but is not applied to the patient during the second period, and a second chopping element for chopping the illumination so that when the illumination is applied during the first period, the illumination is pulsed during the first period.

54. A photodynamic therapy light source, comprising:

a light source for producing illumination;

filter means having a plurality of filter elements for filtering the illumination produced by the light source to provide illumination in a specific bandwidth; and

a modulating component for modulating the illumination so that the illumination is applied to a patient in a plurality of cycles with each cycle comprising a first period in which illumination is applied and a second period in which illumination is prevented from being applied to the patient.

55. The photodynamic therapy light source of claim 54 wherein the light source includes a controller for controlling the modulating component to thereby provide the first period in which illumination is applied to the patient, and the second period in which no illumination is applied to the patient.

56. The photodynamic therapy light source of claim 55 wherein the controller is for controlling the modulating component so that the first period is always longer in time than the second period.

57. The photodynamic therapy light source of claim 55 wherein the controller further controls the modulating

component to pulse the illumination during the first period so that pulsed illumination is applied to the patient during the first period.

58. The photodynamic therapy light source of claim 54 wherein the modulator component comprises a pulse width modulator circuit.

59. The photodynamic therapy light source of claim 54 wherein the modulator component comprises a first chopper for chopping the illumination to provide the first period in which illumination is applied to the patient, and the second period in which no illumination is applied to the patient.

60. The photodynamic therapy light source of claim 59 wherein the modulating component further comprises a second chopper for chopping the illumination to pulse or modulate the illumination which is applied during the first period.

61. The photodynamic therapy light source of claim 54 wherein the filter means comprises a first filter wheel having at least a filter element for transmitting ultraviolet light, a filter element for transmitting infrared light, and a filter element for transmitting light in the visible spectrum, and a blank region for preventing transmission of any light from the light source, and a second filter wheel having a plurality of filter elements for selecting a particular bandwidth of wavelength for transmission through the second filter wheel.

62. The photodynamic therapy light source of claim 61 wherein the first and second filter wheels include drive means for rotating the filter wheel so as to bring a selected one of the filter elements into alignment with

the light source so that light of the required wavelength is provided.

63. The photodynamic therapy light source of claim 54 wherein the photodynamic therapy light source includes a light guide for receiving the light from the filter means and for conveying the light to a patient.

64. The photodynamic therapy light source of claim 54 wherein the photodynamic therapy light source includes a camera for providing an image of a region of the patient which is to be treated.

65. The photodynamic therapy light source of claim 64 wherein the camera is a charged couple device array and light is transmitted to the camera by an image fibre.

66. The photodynamic therapy light source of claim 65 wherein the image fibre is included in the light guide.

67. The photodynamic therapy light source of claim 54 wherein the photodynamic therapy light source includes a spectrum analyser for analysing the spectrum of reflected radiation from a region of the patient to be treated.

68. The photodynamic therapy light source of claim 67 wherein the spectrum analyser receives light reflected from the region of the patient via a fibre waveguide.

69. The photodynamic therapy light source of claim 68 wherein the fibre waveguide is included in the light guide.

70. The photodynamic therapy light source of claim 61 wherein the second filter wheel includes a tilt mechanism for tilting the filter wheel to shift the bandwidth provided by each of the filter elements of the second

filter wheel.

71. The photodynamic therapy light source of claim 54 wherein the photodynamic therapy light source also includes a light intensity unit for measuring the intensity of light provided to the patient from the filter means and for determining the dose applied to the patient based on the intensity of the light, and also the distance the light guide will be held away from the patient during treatment of the patient.

72. The photodynamic therapy light source of claim 55 wherein the control means is connectable to an external computer for storing the database and for enabling user input of commands and data.

73. The photodynamic therapy light source of claim 55 wherein the controller is also for receiving data from the external computer relating to the first and second time periods, and also the frequency or pulse of modulation during the first time period when illumination is applied to the patient.